1056-14-1933 **Christopher Lyons*** (`clyons@caltech.edu`), Department of Mathematics 253-37, California Institute of Technology, Pasadena, CA 91125. *Algebraic cycles and degenerations for a class of surfaces of general type.*

From an arithmetic standpoint, surfaces of general type have received much less attention than their counterparts of lower Kodaira dimension. We describe work on a class of surfaces of general type over $\mathbb{C}$ with invariants $p_g = q = 1$ and $K^2 = 3$, first classified by Catanese and Ciliberto. All such surfaces (or rather their canonical models) belong to an algebraic family over a connected base.

We indicate how a preliminary picture of degenerations of the smooth fibers in this family implies that an underlying monodromy representation coming from the 2nd singular cohomology has large image. This immediately implies that the generic Picard number of these surfaces is 2. If the surface is defined over a number field then, in most cases, it may also yield results about the Galois representation on its 2nd ℓ-adic cohomology, such as the Tate Conjecture. (Received September 22, 2009)